

WHAT IS CLAIMED IS:

1 1. A method of manufacturing an ink jet printing module comprising:
2 contacting a first component of an ink jet printing module having a surface with a
3 thermoplastic bonding component; and
4 heating the surface to bond the surface to the thermoplastic bonding component.

1 2. The method of claim 1, further comprising applying pressure to the surface and the
2 thermoplastic bonding component.

1 3. The method of claim 2, wherein pressure is applied during heating.

1 4. The method of claim 1, wherein the surface and the thermoplastic bonding
2 component are substantially free of liquid adhesive.

1 5. The method of claim 1, further comprising contacting a second component of the
2 ink jet printing module having a surface with the thermoplastic bonding component; and
3 heating the surface to bond the surface to the thermoplastic bonding component.

1 6. The method of claim 1, wherein the first component of the ink jet printing module
2 is a piezoelectric element.

1 7. The method of claim 6, wherein the thermoplastic bonding component includes an
2 electrode pattern.

1 8. The method of claim 6, wherein the piezoelectric element is lead zirconium
2 titanate.

1 9. The method of claim 1, wherein the thermoplastic bonding component has a
2 thickness between 1 micron and 150 microns.

1 10. The method of claim 1, wherein the thermoplastic bonding component has a
2 thickness between 10 micron and 125 microns.

1 11. The method of claim 1, wherein the thermoplastic bonding component has a
2 thickness between 20 microns and 50 microns.

1 12. The method of claim 1, wherein the thermoplastic bonding component includes
2 an adhesive polyimide.

1 13. The method of claim 1, wherein the ink jet printing module includes an ink
2 channel, the piezoelectric element being positioned to subject ink within the channel to
3 jetting pressure, and electrical contacts arranged for activation of the piezoelectric element.

1 14. The method of claim 13, wherein the ink jet printing module includes a series of
2 channels.

1 15. The method of claim 13, wherein the thermoplastic bonding component is placed
2 over the ink channel and includes a filter.

1 16. The method of claim 15, wherein the filter includes a repeating pattern of units
2 having a plurality of openings.

1 17. The method of claim 16, wherein a land between the units is at least 50 microns.

1 18. The method of claim 1, wherein the module includes an orifice plate and the
2 method further comprises adhering a protector strip over the orifice plate.

1 19. The method of claim 18, wherein the orifice plate includes a thermoplastic
2 bonding material adjacent to the protector strip.

1 20. The method of claim 18, wherein the protector strip includes a thermoplastic
2 bonding material adjacent to the orifice strip.

1 21. A method of manufacturing an ink jet printing module comprising:
2 contacting a first component of an ink jet printing module having a surface with a

thermoplastic bonding component;
contacting a second component of the ink jet printing module having a surface with
the thermoplastic bonding component; and
heating the surface to bond the surfaces to the thermoplastic bonding component.

22. The method of claim 21, further comprising applying pressure to the surface and
the thermoplastic bonding component.

23. The method of claim 21, wherein pressure is applied during heating.

24. The method of claim 21, wherein the surface and the thermoplastic bonding
component are substantially free of liquid adhesive.

25. The method of claim 21, wherein the first component of the ink jet printing
module is a piezoelectric element.

26. The method of claim 21, wherein the ink jet printing module includes an ink
channel, the piezoelectric element being positioned to subject ink within the channel to
jetting pressure, and electrical contacts arranged for activation of the piezoelectric element.

27. The method of claim 26, wherein the thermoplastic bonding component is placed
over the ink channel and includes a filter including a repeating pattern of units having a
plurality of openings and a land between the units is at least 50 microns.

28. The method of claim 21, wherein the module includes an orifice plate and the
method further comprises adhering a protector strip over the orifice plate.

29. An ink jet printing module comprising a piezoelectric element having a surface,
and a thermoplastic bonding component heat-bonded to the surface.

30. The ink jet printing module of claim 29, wherein the thermoplastic bonding
component includes a first surface heat-bonded to the surface of the piezoelectric element
and a second surface heat-bonded to a surface of an ink jet printing module component.

1 31. The ink jet printing module of claim 29, wherein the thermoplastic bonding
2 component includes an electrode pattern.

1 32. The ink jet printing module of claim 29, wherein the piezoelectric element is lead
2 zirconium titanate.

1 33. The ink jet printing module of claim 29, wherein the thermoplastic bonding
2 component has a thickness between 1 micron and 150 microns.

1 34. The ink jet printing module of claim 29, wherein the thermoplastic bonding
2 component has a thickness between 10 micron and 125 microns.

1 35. The ink jet printing module of claim 29, wherein the thermoplastic bonding
2 component has a thickness between 20 microns and 50 microns.

1 36. The ink jet printing module of claim 29, wherein the thermoplastic bonding
2 component includes an adhesive polyimide.

1 37. The ink jet printing module of claim 29, further comprising an ink channel, the
2 piezoelectric element being positioned to subject ink within the channel to jetting pressure,
3 and electrical contacts arranged for activation of the piezoelectric element.

1 38. The ink jet printing module of claim 37, further comprising a series of channels.

1 39. The ink jet printing module of claim 38, wherein each of said channels is covered
2 by a single piezoelectric element.

1 40. The ink jet printing module of claim 37, wherein the thermoplastic bonding
2 component covers the ink channel and includes a filter.

1 41. The ink jet printing module of claim 40, wherein the filter including a repeating
2 pattern of units having a plurality of openings and a land between the units is at least 50
3 microns.

1 42. The ink jet printing module of claim 41, wherein the width is 300 to 495 microns.

1 43. The ink jet printing module of claim 29, further comprising an orifice plate and a
2 protector strip adhered to the orifice plate, wherein either the orifice plate or the protector
3 strip includes a thermoplastic bonding material.